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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,951	03/23/2007	Young-Chol Yang	PNK0341US	1975
23413 7590 10/14/2010 CANTOR COLBURN LLP 20 Church Street 22nd Floor Hartford, CT 06103				
EXAMINER				
SAJOUS, WESNER				
ART UNIT		PAPER NUMBER		
2628				
NOTIFICATION DATE		DELIVERY MODE		
10/14/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

### Office Action Summary

**Application No.**

10/579,951

**Applicant(s)**

YANG ET AL.

**Examiner**

Sajous Wesner

**Art Unit**

2628

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 September 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-16 is/are allowed.
- 6) ☒ Claim(s) 17-19, 25, 26 and 28-31 is/are rejected.
- 7) ☒ Claim(s) 20-24, 27 and 32-34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 9/1/10 & 9/30/10
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This communication is responsive to the amendments and response dated 9/8/10. Claims 1-33 are presented for examination.

#### ***Response to Arguments***

1. Applicant's arguments with respect to claims 17-34 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by *Ben-David et al.* (US 2008/0192178).

*Considering claims 17 and 26, Ben-David discloses a color display and in particular: A display device comprising: a plurality of pixels arranged in matrix (see for example Fig. 12A, which shows two pixels for example: one shaded and one unshaded), each pixel including first and second sets of three primary color subpixels (please noted that six colors subpixels, RGB and CMY, are shown, so the requirement*

that each set has three primary color subpixels is met), wherein subpixels are arranged so that two subpixels having complimentary relation is adjacent to each other (see for example subpixels labeled "G" and "M" and "R" and "C" or "B" and "Y". Please note that the fact that the colors are used together in a pixel indicates that they have a complimentary relation),

As per claims 18 and 19, Ben-David, at fig. 12, discloses the sub-pixels are arranged in a 2x3 or 3x2 matrix and the first and the second sets of the three primary color sub-pixels are arranged in row or column.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ben-David in view of Elliott et al. (US 20050088385).

Considering claim 25, Ben-David fails to teach primary color subpixels including a white subpixel, which is disclosed by Elliott (see paragraphs 84-85).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Ben-David to include white

subpixel in a set of primary color subpixel, in the same conventional manner as taught by Elliott; in order to achieve high brightness performance of the display.

6. Claims 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ben-David and Elliott and further in view of Taketo et al. (JP No. 9-251160).

As per claims 28-31, Ben-David and Elliott fail to specifically teach sub-pixels are arranged in a 2x3 or 3x2 matrix and the first and the second sets of the three primary color sub-pixels are arranged in row or column, with the blue subpixel disposed on the side and the green subpixel disposed at the center.

Taketo discloses display colors of the six sub picture-elements are the combination of red, green, blue, yellow, magenta and cyan and are arranged in matrix of row or column. See abstract and paragraphs 31-35. Figure 1 in Taketo depicts a picture element consisting of 6 sub picture elements where magenta and green having complementary relation is adjacent to each other; and the sub-pixels are arranged in a 2x3 or 3x2 matrix and the first and the second sets of the three primary color sub-pixels are arranged in row or column, with the blue subpixel disposed on the side and the green subpixel disposed at the center.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Ben-David and Elliott to sub-pixels are arranged in a 2x3 or 3x2 matrix and the first and the second sets of the three primary color sub-pixels are arranged in row or column, with the blue subpixel disposed

on the side and the green subpixel disposed at the center., in the same conventional manner as taught by Taketo; in order to achieve high brightness performance of the display., in the same conventional manner as taught by Elliott; in order to provide an optimum subpixel arrangement for the color display device, so that voltage difference between each electrodes can be controlled effectively.

### **Double Patenting**

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321© may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 17, and 25 rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,888,604. Although the conflicting claims are not identical, they are not patentably distinct from each other because the same subpixel pattern underlays them as is evident by comparing Figures 6 and 7 of the instant application with Figures 23 and 24 of 6,888,604 and even though the claims of the instant application mention six different colors they do not require them to be used and the instant application includes white as a complementary color. Claim 26, for example, doesn't require that all the colors be used, only that red or green or blue be used somewhere and that cyan or magenta or yellow be used somewhere. Since the use of pixels with at least 4 to 7 colors was known, reference for example Sunohara, 5,587,819, which teaches CMYW, CMYRBW, RGBYW, CMYRBW, RGBMYW, RBGCIW, and RBGCIW, it would have been obvious to substitute a C, M, or Y pixel for one of those claimed in 6,888,604.

***Allowable Subject Matter***

9. Claims 20-24, 27, 32-34 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-16 are allowed over the prior art.

**Reasons for Indicating Allowable Subject Matters**

8. Taketo, the closest prior art, discloses a reflection-type color display device capable of recognizing full color display where each picture element is formed of six subpixel elements. The method and the device of converting image signals for a display device including six-color subpixels according to Claims 1 and 12 comprises the following functions: classifying three-color input signals; decomposing the classified signals into six-color components; and extracting six-color output signals (claim 1); a signal controller converting three-color input signals into six-color output signals; a gray voltage generator generating a plurality of gray voltages; and a data driver converting the six-color signals into data voltages selected among the gray voltages and supplying the data voltages to the subpixels, wherein the signal controller comprises: a magnitude comparator comparing the three-color signals; a decomposer decomposing the three-color signals into six-color components; a scaler calculating a scaling factor based on signals from the magnitude comparator and the decomposer; and a signal extractor multiplying the scaling factor to the six-color components (claim 12) that are not disclosed in Taketo. The device according to Claim 20 differs from that of D in that a subpixel having the lowest luminance is disposed to a side.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. They are as recited in the attached PTO-892 form.



10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sajous Wesner whose telephone number is 571-272-7791. The examiner can normally be reached on M-F 9:15-6:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on 571-272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sajous Wesner/  
Primary Examiner, Art Unit 2628

WS  
6/3/2010